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FISH AND WILDLIFE SERVICE  
Fire Management Branch  
National Interagency Fire Center  
3833 South Development Avenue  
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October 31, 2007

To: Chief, Fire Management Branch, Boise, Idaho

From: National FWS BAER Coordinator, Boise, Idaho

Subject: Approval - Wautoma, Milepost 17, Upper Goose Fire Burned Area Emergency Response Plans and Bobcat Overlook Fire Burned Area Rehabilitation Plan

An in-depth review of the plan was completed and revealed some implementation, planning and a policy issue that require resolution.

The Wautoma implementation issue is the planned completion date of the elk fence to protect riparian areas. The original plan called for a planned completion date of 11/30/07 but the revised plan pushed the date back to 3/31/08. Elk must be excluded from the area before they can damage the remaining unburned riparian vegetation which requires the original planned completion data of 11/30/07. Significant riparian habitat damage is likely if elk remain in the area through 3/31/08.

The Wautoma planning issues are the Drift Fence total contract cost is \$14,500, the total Native Seeding – Floodplain is \$58,815, and there is no treatment effectiveness monitoring protocols in specifications 3 or 10. How the effectiveness of these treatments 3 and 10 will be monitoring needs to be in the plans.

The Wautoma, Milepost 17, Upper Goose and Bobcat policy issue of significance relates to the Ecological Stabilization - Native Seeding treatment specifications. The stated purpose of the treatment is *to promote ecological recovery of native shrub/steppe ecosystem and riparian zones, to prevent invasion by non-native species and noxious weeds, and to stabilize soils*. Departmental policy (620 DM 3.7.M) identifies three emergency stabilization allowable actions relative to seeding:

- *Actions to stabilize soil to prevent loss or degradation of productivity.*
- *Seeding or planting to prevent permanent impairment of designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species. This is irrelevant since the burned area is not designated Critical Habitat.*
- *Seeding to prevent establishment of invasive plants, and direct treatment of invasive plants. Such actions will be specified in the emergency stabilization plan only when immediate action is required and when standard treatments are used that have been*

*validated by monitoring data from previous projects, or when there is documented research establishing the effectiveness of such actions.*

Departmental policy 620 DM 3.6.B requires the use of standard treatments *that have been validated by monitoring data from previous projects, or when there is documented research establishing the effectiveness of such actions.* There is no evidence in peer reviewed research and project monitoring publications<sup>1</sup> that post-fire seeding prevents the establishment of invasive species or significantly reduces soil erosion over natural recovery.

The seeding proposed is unlikely to limit erosion and stabilize the soil significantly better than natural recovery. In a synthesis of post-wildfire seeding erosion control studies, Beyers (2004) found that less than half of the studies reviewed showed any reduced sediment movement with seeding and in all vegetation types and where there was successful growth of seeded grasses (i.e., enough to affect erosion) the seeded plants displace native or naturalized species, including shrub and tree seedlings. Thompson et al. (2006) also found that neither seeded (drilled or aerial) or unseeded plots showed significant signs of wind erosion or deposition throughout the study as evidenced by little difference (<2mm) in the height of washers on erosion measurement stakes. Although no data was collected, Evans and Lih (2005) observed that natural recovery had moderated wind erosion to some degree in the 24 Command Fire burned area.

The hydromulch treatment and proposed has limited soil stabilization or seed survival utility and is very expensive. The longevity of the paper/wood fiber hydromulch product is months (3-9) in an arid environment. Since the proposal is to combine hydromulch with seeds and the preferable time to seed is in the fall, the effectiveness window of the hydromulch is throughout the winter and early spring when soil moistures are high and wind erosion potential low. By June the month with the highest average monthly wind speed, the effectiveness of the hydromulch to reduce wind erosion is nearly over. Bainbridge (1995) reported to the California Department of Transportation that erosion control and revegetation of bare slopes and large sandy areas in arid areas can be difficult and expensive. Methods that have a poor record in dry climates included: erosion control fabric; terracing; trenching or ridging the contour; hydromulching (with wood fiber or straw); and wattling (placing vertical or horizontal layers of brush or vegetation into the soil) to stabilize slopes for seeding and container planting. Hydromulched, tackified, or crimped straw has often been used as an erosion control barrier and seed cover. Hydromulch often provided sufficient moisture to germinate seed, but seedlings dry out and die in these arid environments. They concluded that vertical mulching, or placing straw, sticks, or brush upright in the soil is one of the best methods for protecting denuded areas and encouraging plant establishment.

There is no evidence that seeding prevents the establishment of invasive species. Keeley et al (2003) found that alien plant species richness as well as alien cover increased with increasing native species richness in all communities and reported that they found no support for the hypothesis that community diversity inhibits alien invasions. They concluded that alien plant species are limited not by the number of competitors, but by resources that affect establishment of both natives and aliens. Hunter et al. (2006) also found that non-native plant cover in burned areas was correlated with high native species richness, low native

dominant species cover, and post-wildfire seeding operations (i.e., seeding operations contaminated with non-native plant seeds). In a Utah study, cheatgrass and three annual forbs made up the majority of plant density and cover and by the third year following seeding the density of annuals more than doubled, whereas there was little change in seeded native species density (Thompson et al. 2006). Floyd et al. (2006) found that seeded burned areas at Mesa Verde National Park had significantly less non-native plants than unseeded burned areas but significantly more than unburned areas except there was no significant difference in cheatgrass (*Bromus tectorum*) between seeded or unseeded burned areas. Evans and Lih (2005:171) reported the effects of herbicide treatments and native seedings on cheatgrass abundance within the rehabilitation project area were slight, and found a lack of any significant correlation in seedling emergence or potential recruitment and cheatgrass cover or density at the Arid Lands Ecological (ALE) Reserve.

There is evidence that seeding can facilitate long term ecosystem restoration and promote ecological recovery of native shrub/steppe ecosystem which is an allowable burned area rehabilitation action (i.e., *repairing or improving lands unlikely to recover naturally from wildland fire damage by emulating historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with existing land management plans*). Several studies (Eiswerth and Shonkwiler 2006, Seabloom et al. 2003 and Huddleston and Young 2005) have shown that seeding and seeding in combination with herbicide treatments can significantly alter the species composition from natural recovery where invasive species are already established. The proposed seed mix given sufficient winter and spring rainfall may prove beneficial in initiating post-wildfire rehabilitation. Restoration of ecosystems where invasive species have altered the fire regime is costly, has a low probability of success, will require not only species composition and invasive species management but also managing all perturbed biophysical settings (Brooks et al. 2004), and will take a funding commitment well beyond the three year post wildfire recovery limit.

*No project can hope to restore the ecological structure and function of a complex ecosystem such as that which existed on the ALE Reserve within a few years. However, through persistent effort, a landscape may be set on a successional trajectory that will lead to the recovery of ecological processes and habitat quality within a reasonable period of time. Complete recovery of the structure and function of ALE shrublands impacted by the 24 Command Fire is still decades away. The most optimistic scenario for the full recovery of shrub-steppe qualities on the Arid Lands Ecology Reserve involves **many years of continued planting and monitoring, persistent efforts at weed and fire management**, and years of patience as restored stands slowly develop.* (Evans and Lih 2005:xvi).

The Cultural Resource Compliance specifications in the Bobcat and Upper Goose plans state that there are no known historic sites within or adjacent to the burned areas. Since there are no known historic properties in the burned area, there is no need for any Section 106 compliance actions. The Interagency Burned Area Emergency Stabilization Guidebook limits cultural resource assessments to known historic properties. Systematic

inventories or surveys of an area for new or undiscovered historic properties are prohibited actions. If historic properties are discovered while conducting emergency stabilization treatments, all activities should stop and the Regional Historic Preservation Officer notified. Based on the findings of the Regional Historic Preservation Officer, Section 106 compliance action may be required and the BAER plan may need amending.

The Law Enforcement Monitoring of Cultural Resources Exposed by Fire specification in the Overlook Burned Area Rehabilitation Plan is not allowed. Section 106 compliance is the only cultural resource activity allowable burned area rehabilitation activity (see section 4.2.1 of the Interagency Burned Area Rehabilitation Guidebook).

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